



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/542,147	09/06/2005	Hiroshi Yamada	124683	9782
25944	7590	10/26/2006		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER LIU, BENJAMIN T	
			ART UNIT 2826	PAPER NUMBER

DATE MAILED: 10/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/542,147	Applicant(s) YAMADA ET AL.	
	Examiner Benjamin T. Liu	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Oath/Declaration

1. Oath submitted 9/6/06 accepted.

Response to Arguments

2. Applicant's argument on page 1 of arguments submitted 8/14/06 that "Office Action does not address claims 9-17 as submitted in the Preliminary Amendment filed July 13, 2005" is correct. Claims 9-17 are addressed in the current nonfinal Office Action.
3. Applicant's arguments submitted 8/14/06 with respect to claims 1-8 have been considered but are moot in view of the new ground(s) of rejection.
4. Applicant's "REQUEST FOR CORRECTION OF PALM RECORDS" submitted 10/5/06 has been received and the PALM record has been corrected. See attached "Patent Assignment Abstract of Title."

Claim Rejections - 35 USC § 102(b)

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7, and 8-14 are rejected under 35 U.S.C 102(b) as being anticipated over Saitoh et al. (5,741,615).

With regard to claim 1, Saitoh et al. '615 discloses a photoelectric transducer comprising a first pin junction part including: a first p-layer; a first n-layer disposed so as to oppose the first p-layer; and a first i-layer, disposed between the first p-layer and first n-layer, containing an iron atom, a silicon atom bonded to the iron atom, and a hydrogen atom. (Note abstract, lines 28-32 in column 3, lines 19-35 in column 8, lines 10-12 in column 24, lines 44-50 in column 24, and lines 66 in column 24 to lines 15 in column 25 of Saitoh et al. '615)

With regard to claim 2, Saitoh et al. '615 discloses the first i-layer is formed by at least partly bonding the hydrogen atom to the silicon atom or iron atom. (Note lines 32-33 in column 4 of Saitoh et al. '615)

With regard to claim 3, Saitoh et al. '615 discloses the first i-layer is mainly amorphous. (Note lines 45-48 in column 24 of Saitoh et al. '615)

With regard to claim 4, Saitoh et al. '615 discloses the first i-layer has a hydrogen atom content of 1 to 25 atom %. (Note abstract of Saitoh et al. '615)

With regard to claim 5, Saitoh et al. '615 discloses the first pin junction part further comprises a second i-layer disposed between the first p-layer and first n-layer and constituted by a mainly amorphous silicon film. (Note lines 45-48 in column 24 of Saitoh et al. '615)

With regard to claim 7, Saitoh et al. '615 discloses a photoelectric transducer apparatus comprising: a substrate 101 (figure 1 & 9); a first electrode layer (no part #,

Art Unit: 2826

"substrate applied with electroconductive treatment" lines 9-12 col 6) disposed on one side of the substrate 101; a second electrode layer (no part #, "an upper electrode" lines 14-15 col 25) disposed so as to oppose the first electrode layer; and a first pin junction part including a first n-layer (no part #, "a-Si layer having an n-type conductivity" lines 18-19 col 24) formed on the first electrode layer, a first p-layer (no part #, "a-Si layer having a p-type conductivity" lines 7-8 col 25) formed on one side of the second electrode layer so as to oppose the first n-layer, and a first i-layer (no part #, "a-Si layer" line 46 col 24), disposed between the first p-layer and first n-layer, containing an iron atom, a silicon atom bonded to the iron atom, and a hydrogen atom. (Note abstract of Saitoh et al.)

With regard to claim 8, Saitoh et al. '615 discloses an iron silicide film for constructing an i-layer (no part #, "a-Si layer" line 46 col 24) in a pin (no part #, "pin structure" line 14 col 25) junction; the iron silicide film containing an iron atom, a silicon atom bonded to the iron atom, and a hydrogen atom while being mainly amorphous. (Note abstract, lines 28-32 in column 3, lines 19-35 in column 8, lines 10-12 in column 24, lines 44-50 in column 24, and lines 66 in column 24 to lines 15 in column 25 of Saitoh et al. '615)

With regard to claim 9, Saitoh et al. '615 discloses the first i-layer is mainly amorphous. (Note lines 45-48 in column 24 of Saitoh et al. '615)

With regard to claim 10, Saitoh et al. '615 discloses the first i-layer has a hydrogen atom content of 1 to 25 atom %. (Note abstract of Saitoh et al. '615)

With regard to claim 11, Saitoh et al. '615 discloses the first i-layer has a hydrogen atom content of 1 to 25 atom %. (Note abstract of Saitoh et al. '615)

With regard to claim 12, Saitoh et al. '615 discloses the first pin junction part further comprises a second i-layer disposed between the first p-layer and first p-layer and constituted by a mainly amorphous silicon film. (Note lines 45-48 in column 24 of Saitoh et al. '615)

With regard to claim 13, Saitoh et al. '615 discloses the first pin junction part further comprises a second i-layer disposed between the first p-layer and first p-layer and constituted by a mainly amorphous silicon film. (Note lines 45-48 in column 24 of Saitoh et al. '615)

With regard to claim 14, Saitoh et al. '615 discloses the first pin junction part further comprises a second i-layer disposed between the first p-layer and first p-layer and constituted by a mainly amorphous silicon film. (Note lines 45-48 in column 24 of Saitoh et al. '615)

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 15-17 are rejected under 35 U.S.C 103(a) as being unpatentable over Saitoh et al. (5,741,615) in view of Saitoh et al. (5,417,770).

With regard to claim 6, Saitoh et al. '615 disclose all the subject matter claimed except for a second pin junction part, disposed in series with the first pin junction part, including: a second p-layer; a second n-layer disposed so as to oppose the second p-layer; and a third i-layer disposed between the second p-layer and second n-layer and made of an amorphous silicon film.

However, figure 9 of Saitoh et al. '770 discloses a second pin junction part (907, 908, 909), disposed in series with the first pin junction (904, 905, 906) part, including: a second p-layer 909; a second n-layer 907 disposed so as to oppose the second p-layer 909; and a third i-layer (bottom of 908) disposed between the second p-layer 909 and second n-layer 907 and made of an amorphous silicon film. (Note lines 37-41 in column 32 of Saitoh et al.)

Therefore, it would be obvious to one of ordinary skill in the art to form the device of Saitoh et al. '615 with the second pin of Saitoh et al. '770 in order to absorb different wavelengths.

With regard to claim 15, Saitoh et al. '615 discloses all the subject matter claimed except for a second pin junction part, disposed in series with the first pin junction part, including: a second p-layer; a second n-layer disposed so as to oppose the second p-layer; and a third i-layer disposed between the second p-layer and second n-layer and made of an amorphous silicon film.

However, figure 9 of Saitoh et al. '770 discloses a second pin junction (907, 908, 909) part, disposed in series with the first pin junction (904, 905, 906) part, including: a second p-layer 909; a second n-layer 907 disposed so as to oppose the second p-layer 909; and a third i-layer 908 disposed between the second p-layer 909 and second n-layer 907 and made of an amorphous silicon film. (Note lines 37-41 in column 32 of Saitoh et al.)

Therefore, it would be obvious to one of ordinary skill in the art to form the device of Saitoh et al. '615 with the second pin of Saitoh et al. '770 in order to absorb different wavelengths.

With regard to claim 16, Saitoh et al. '615 discloses all the subject matter claimed except for a second pin junction part, disposed in series with the first pin junction part, including: a second p-layer; a second n-layer disposed so as to oppose the second p-layer; and a third i-layer disposed between the second p-layer and second n-layer and made of an amorphous silicon film.

However, figure 9 of Saitoh et al. '770 discloses a second pin junction (907, 908, 909) part, disposed in series with the first pin junction (904, 905, 906) part, including: a second p-layer 909; a second n-layer 907 disposed so as to oppose the second p-layer 909; and a third i-layer 908 disposed between the second p-layer 909 and second n-layer 907 and made of an amorphous silicon film. (Note lines 37-41 in column 32 of Saitoh et al.)

Therefore, it would be obvious to one of ordinary skill in the art to form the device of Saitoh et al. '615 with the second pin of Saitoh et al. '770 in order to absorb different wavelengths.

With regard to claim 17, Saitoh et al. '615 discloses all the subject matter claimed except for a second pin junction part, disposed in series with the first pin junction part, including: a second p-layer; a second n-layer disposed so as to oppose the second p-layer; and a third i-layer disposed between the second p-layer and second n-layer and made of an amorphous silicon film.

However, figure 9 of Saitoh et al. '770 discloses a second pin junction (907, 908, 909) part, disposed in series with the first pin junction (904, 905, 906) part, including: a second p-layer 909; a second n-layer 907 disposed so as to oppose the second p-layer 909; and a third i-layer 908 disposed between the second p-layer 909 and second n-layer 907 and made of an amorphous silicon film. (Note lines 37-41 in column 32 of Saitoh et al.)

Therefore, it would be obvious to one of ordinary skill in the art to form the device of Saitoh et al. '615 with the second pin of Saitoh et al. '770 in order to absorb different wavelengths.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Benjamin T. Liu whose telephone number is (571) 272-6009. The examiner can normally be reached on Mon-Fri 9:30 AM-6:00AM.

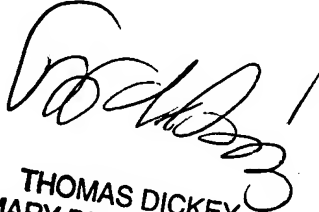
Art Unit: 2826

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on 571 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BTL

10/18/2006


THOMAS DICKEY
PRIMARY PATENT EXAMINER